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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,584	04/02/2001	Jean-Michel Espenan	2143/49565	1647

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EXAMINER
FORTUNA, ANA M
ART UNIT
PAPER NUMBER

1723

DATE MAILED: 01/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/744,584

Applicant

Espenan et al

Examiner
Ana Fortuna

Art Unit
1723



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 24, 2002
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-48 is/are pending in the application.
- 4a) Of the above, claim(s) 38-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-37 and 41-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____

3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 8

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 U.S.C. § 112

1. Claims 21-37 and 41-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 21, the word "fiber type" is unclear as to with is intended. Claims 23-24 are also unclear as to whether process claim is intended, the claims does not further limit the installation structure. Claim 21 is further unclear as to whether the raw water inlet and the raw water feed pipe Art the same elements, as to whether the raw water inlet and the drain are connected to the module(s) containing the membranes. Claim 25 is redundant, since forming a membrane module with the container containing the membranes is part of the limitations of claim 21.
2. Claims 33, 37 recites the limitation "basin" line 4 of claim 32. Claim 33 recites the limitation "means for feeding the modules", lines 1-2; and claim 37 recites' and claim 37 includes the recitation "the backwashing water" in line 5.. There is insufficient antecedent basis for this limitation in the claim.
3. Claims 21-27, 29-31, 33-37 and 41-48 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the basin or vessel, in which the containers forming the membrane modules are immersed, which limitation is disclosed

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as essential for the formation of the height of water which is the source of differential pressure for the system or installation, as disclosed in page 4, second paragraph.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21, 22, 23, 24, 25-32, 34-37, 41- 48 are, rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al (5,607,593) (hereinafter '593) in view of Simizu et al (4,940,542) hereinafter '542), and further in view of Norton (5,045,198)(hereinafter '198). Reference '593 substantially discloses the installation as claimed in claim 21, except, that the hollow fiber membranes although are potted at one end, and have only the lower potted end open and fixed to a bottom chamber of the container or basin, the hollow fiber membranes are not configured a U-shaped, and are not provided within a container, other than the reactor containing the water to be treated and forming the pressure head driving the water through the membranes (container 1, Fig. 1, elements 3, 9, 4, 28, 7, and conduct connected to pump 18 for backwashing with permeate, page 8, lines 45-68, though column 9, lines 1-20). Reference '542 teaches a water purifying device having a first container containing a volume of water, and provided therein a second housing or container containing a U-shape membrane module provided within a container having

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a conduit receiving water under a water head pressure, and collecting permeate at the end of the membrane module (abstract, elements 10, 60, 12, 56, column 5, lines 5-68, though column 6, lines 1-64). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to expect the operation of a membrane in U-shape configuration within a container, providing an inlet to receive water under pressure (of the head of water) to perform in the system of Cote et al., which are also immersed in a column of water or operated under the head pressure of water. Claim 21 also includes the recitation of "U-shape which two open ends are located at the bottom, with the potting at low end of the membrane". Reference '542 fails to teach the potting or the ends at the bottom of the hollow fiber module container. That would have been obvious to one skilled in the art at the time the invention was made, depending on the direction that the permeate is intended to be collected from the module. Reference '198 further teaches and illustrates (figures 1, 2 and 6, teaches the alternative arrangement of U-shape hollow fiber modules placed within a housing, with the ends potted at the lower end of the container or at the upper end of the container depending on the raw water feed direction and permeate collection are position. It would have been obvious to one skilled in the art at the time the invention was made to substitute the "closed end hollow fiber module potted at the end of the container by U-shape hollow fiber modules as suggested in the references to '542 and 198 above. It would have been further obvious to one skilled in the art at the time the invention was made to substitute the sheaths having openings (8a, 8b, column 11, lines 21-31) with a housing for the membrane module having one inlet for the water to be filtered, as suggested by '542, and optional discharge

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as suggested by reference '198 (Fig 2, element 62 ad 32). As to claim 22, the ends of the membrane at the same point is disclosed by '542 and '198 with the U-shape arrangement. As to claims 23-24, the required pressure is dependent of the module size or number of modules, the type of membrane pore size etc. It would have been obvious to one skilled in the art at the time the invention was made to select the appropriate column of water depending on these factors. Membranes modules are disclosed in reference '593, the shape is further suggested in references 198 and '542. As to claims 26-31 reference '593 teaches the membrane properties and surface area of the hollow fiber membrane modules used in his filtration installation (column 12, lines 40-47), adjusting the number of fiber per modules and the number of modules as required for handling a predetermine volume of water and producing a predetermine volume of purified water it would have been within the knowledge of the skilled artisan at the time the invention was made. As to claim 32 connecting the feed inlet pipe to the module at a distance within the head of water capable of providing the necessary head pressure of water to operate the membrane modules, it would have been obvious to one skilled in the art at the time the invention was made. Reference '593 teaches permeate discharge conduit connected to a pump and to a collection container (26), providing the system of the discharge line with valve is not disclosed, however, valves in the permeate conduit for controlling flow are suggested by reference '198 (element 138, column 7, lines 48-51). As to claims 35-37, the backwashing is disclosed in reference '593, as discussed above, e.g. elements 26, 18. And 22. Cleaning with gas and ozone is disclosed in reference '593, however, cleaning with other conventional agents, such as chlorine or hydroxide, depending on

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the type of contaminants it would have been obvious to the skilled in the art at the time the invention was made, the installation does provide the structure required, e.g. means providing a cleaning agent. The limitations of claims 41-48 have been discussed above, since they contain the limitations of claims 23, 28, and 31 respectively.

6. Claim 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C.

112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

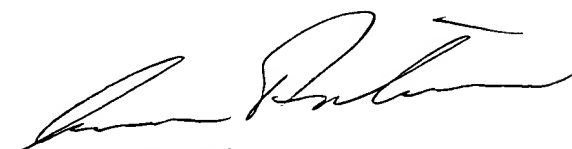
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additionally cited art represent the state of the art in U-shape hollow fiber membrane modules for treating water in a vessel..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for regular responses, and (703)872-9311 for after finals.

Ana Fortuna

January 06 2003



ANA FORTUNA
PRIMARY EXAMINER